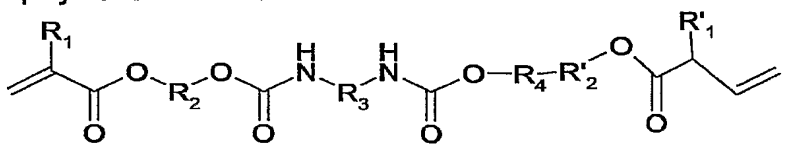
Claims

1 A polymer of Formula 1:



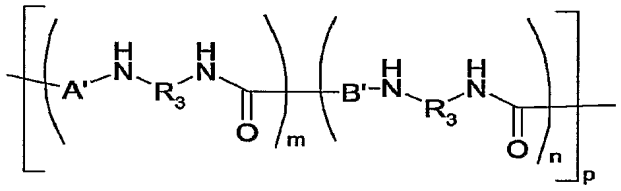
Formula 1,

where:

R_1 and R'_1 are each independently hydrogen or C_{1-4}alkyl, conveniently H or methyl,

R_2, R'_2 and R_3 are each independently optionally substituted organo group, conveniently optionally substituted hydrocarbo, more conveniently optionally substituted C_{1-36}hydrocarbylene; for example C_{1-18}alkylene;

R_4 is a divalent random block copolymeric moiety (= 'backbone') of Formula 2:



Formula 2

where:

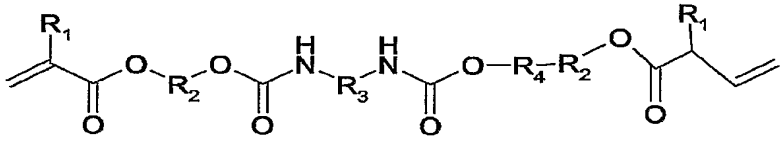
A' is an organo residue obtained and/or obtainable from one or more polyols comprising at least one activated unsaturated moiet(ies), where the polyol(s) are monodisperse compounds of low molecular weight and preferably hydrophillic;

B' is an organo residue obtained and/or obtainable from one or more polyols comprising at least one activated unsaturated moiet(ies); where the polyol(s) are polymers of high molecular weight and preferably hydrophobic;

m and n are independent integers; and

p is from about 2 to about 100.

2. A polymer of Formula 1A:

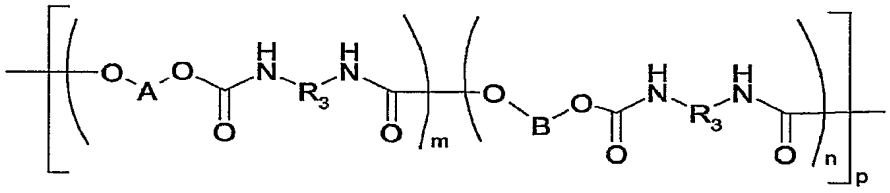


Formula 1A,

where:

R_1 is hydrogen or methyl;

R_2 is a divalent residue derived from alkyl or alkoxy hydroxy (meth) acrylate(s); more preferably an alkyl or alkoxy residue;
R_3 is a divalent residue derived from aliphatic, cycloaliphatic, heterocyclic and/or aromatic diisocyanate(s);
R_4 is a divalent random block copolymer backbone of Formula 2A:



Formula 2A

where:
A is a divalent residue derived from one or more acrylic-derived polyol(s);
B is a divalent residue derived from one or more rubber-derived polyol(s);
m and n are independently an integer from 1 to 20; and
p is from about 2 to about 50.

3 A polymer as claimed in either preceding claim having a z-average molecular weight (M_z) measured by gel permeation chromatography (GPC) from about 50 to about 5,500 kilo Daltons (kDa).

4. A polymer as claimed in either claim 1 or 2 having a weight average molecular weight (M_w) measured by GPC from about 1 to about 1,000 kDa,.

5. A polymer as claimed in either claim 1 or 2 having a number average molecular weight (M_n) of from about 1 to about 100 kDa.

6. A polymer as claimed in either claim 1 or 2 having a density of radiation curable functional groups (measured as molecular weight per group) from about 1 to 150 kDa.

7. A method of preparing a UV curable urethane (meth)acrylate polymer by reacting a hydroxyl functional ethylenically unsaturated polymer precursor with one or more di-isocyanates. where the hydroxyl functional ethylenically unsaturated polymer precursor is a copolymer obtained and/or are obtainable from (a) one or more C_{1-14}alkyl(meth)acrylate(s) (b) one or more polybutadiene derived polyol(s); hydrogenated polybutadiene derived difunctional polyol(s); poly(ethylene / butylene) derived difunctional polyol(s); non-crystalline polyether glycol(s); and (c) one or more

poly-functional compounds comprising hindered, tertiary carboxylic acid group(s) therein and a pluraility of reactive, primary hydroxy groups.

8 A polymer obtained or obtainable by the method of claim 7.

9 A radiation curable adhesive formulation comprising (by weight) 100 parts of one or more polymer(s) as claimed in any of claims 1, 2 and 8; together with from about 1 to about 120 parts, preferably from about 20 to about 80 parts of one or more tackifier(s):

10. A film laminate comprising a plurality of layers between at least two of is a polymer as claimed in claims 1, 2 or 8 or a formulation as claimed in claim 9.